REMARKS

Paragraph 0001 of the specification was amended to include the serial numbers of the co-pending applications.

Claims 1, 2, 3 are amended to correct obvious and inadvertent clerical errors.

No new matter has been added.

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CLAIMS

Claim rejections under 35 U.S.C. § 102

The Examiner rejected Claims 1-9 under 35 U.S.C. 102(e) as
being anticipated by Piccinelli et al. (U.S. Patent No.
6,414,997) (hereinafter referred to as "Piccinelli").
Specifically with regards to Claims 1, the Examiner stated that:

> Piccinelli discloses a method of determining
> a motion vector for a macroblock of a
> present image from a previous image
> (Piccinelli: column 6, lines 54-60), the
> method comprising: selecting a first set of
> pixel blocks in the previous image
> (Piccinelli: column 12, lines 3 5-52);
> computing a first difference measure for
> each of the pixel blocks in the first set of
> pixel blocks to form a plurality of first
> pixel measures (Piccinelli: column 12, lines
> 24-33); determining a first closest matching
> pixel block having a lowest first difference
> measure (Piccinelli: column 12, lines 20-
> 25); selecting a second set of pixel blocks
> in the previous image (Piccinelli: column
> 12, lines 35-52; column 7, lines 65-67;
> column 8, lines 1-32); computing a second
> difference measure for each of the pixel
> blocks in the second set of pixel blocks to
> form a plurality of second difference
> measures (Piccinelli: column 13, lines 1-
> 13); computing a first accurate difference
> measure for the first closest matching pixel
> block, wherein the first accurate difference
> measure is a member of the plurality of
> accurate difference measures (Piccinelli:
> column 13, lines 40-55); computing a second
> accurate difference measure for the second
> matching pixel block, wherein the second
> accurate difference measure is a member of
> the plurality difference measures
> (Piccinelli: column 13, lines 40-55);
> selecting the first closest matching pixel
> block as a origin block when the first
> accurate difference measure is less than or

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equal to other members of the plurality of
difference measures (Piccinelli: column 13,
liners 20-35); selecting the second closest
matching pixel block as a origin block when
the second accurate difference measure is
less than the first accurate difference
measure and less than or equal to other
members of the plurality of difference
measures (Piccinelli: column 13, liners 20-
35); computing the motion vector using the
origin block and the macroblock (Piccinelli:
column 12, lines 1-10), as in claim 1.

Applicants respectfully submit that the interpretation
Piccinelli presented by the Examiner is flawed.

Claim 1 recites in part:

> selecting a first set of pixel blocks
> in the previous image;
> computing a first difference measure
> for each of the pixel blocks in the first
> set of pixel blocks to form a plurality of
> first difference measures …
> determining a first closest matching
> pixel block having a lowest first difference
> measure; …
> computing a first accurate difference
> measure for the first closest matching pixel
> block, wherein the first accurate difference
> measure is a member of a plurality of
> accurate difference measures; …
> selecting the first closest matching
> pixel block as a origin block when the first
> accurate difference measure is less than or
> equal to other members of the plurality of
> <u>accurate</u> difference measure

Thus, in Claim 1 a two step process is used to select the
origin block in the previous image that corresponds to the
macroblock of the present image. However, the two step process
described by Piccinelli is for encoding MPEG 2 fields.
Specifically, Piccinelli teaches that:

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"A block diagram of the hierarchical
recursive motion estimator of the invention is
depicted in Fig. 4. In particular, there are
three blocks. The first block carries out the
first step of the procedure, which is the
initialization and convergence of the motion
fields. The third block carries out <u>the second
step of the algorithm which is the coding of the
MPEG-2 fields.</u>" (Piccinelli, Col. 11, lines 11-
14).

The Examiner cited Piccinelli Col. 13, lines 40-55 with
respect to the portion of Claim 1 which recites "computing a
first accurate difference measure for the first closest matching
pixel block, wherein the first accurate difference measure is a
member of a plurality of accurate difference measures". The
portions of Piccinelli cited by the Examiner describe Figures 11
and 12 of Piccinelli. However as explained at Piccinelli Col
11, line 66 to Col. 12 line 11:

The structure of the last block of FIG.
4, called R.M.E.fine, is shown in Fig. 10.
It is possible to see how the motion vectors
may be appropriately scaled as a function of
the estimate direction (forward or backward)
and of the temporal distance. <u>They are then
made available to the two forward and
backward estimation blocks operating in
parallel, and whose structures are
represented in FIG. 11.</u> The structure of
the above cited estimation blocks is
substantially similar to the one that
operates the completion of the first
estimation step as described in FIG. 5.
However, this is with the exception of the
absence of the memory dedicated to contain
the motion field, which is contained in the
MV cache. <u>Furthermore, the structure of the
block random addressing is new, and its
structure is shown in Fig. 12.</u>

As explained above, "the third block [of Figure 4] carries
out <u>the second step of the algorithm which is the coding of the</u>

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MPEG-2 fields." (Piccinelli, Col. 11, lines 12-14). Piccinelli provides more detail regarding the second in an example on Col. 7 and 8. "For the second step, the QP_n field (type P) is coded, and this requires a spreading of its macroblocks with respect to the QP_{n-1} field positioned at a temporal distance equal to M field periods." (Piccinelli Col. 8, lines 32-35). However, with" respect to the first step, the prevailing macroblock predictor MBQB(i,j) belonging to the QB1 field is searched on Qp_{n-1} [sic]." (Piccinelli, Col. 7, lines 32-34). Therefore, Applicants respectfully submit that Piccinelli does not teach or suggest "computing a first accurate difference measure for the first closest matching pixel block" as recited in Claim 1. Accordingly, Applicants request reconsideration and withdraw of the rejection of Claim 1. Furthermore, Applicants respectfully submit that Claims 2-8, which depend from Claim 1, are likewise patentable.

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CONCLUSION

Claims 1-9 are pending in the present application. Reconsideration and allowance of these claims is respectfully requested. If there are any questions, please telephone Edward Mao at (925) 895-3546 to expedite prosecution of this case.

Respectfully submitted,

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CERTIFICATE OF TRANSMISSION (37 C.F.R. 1.8(a))

I hereby certify that, on the date shown below, this correspondence is being transmitted by **facsimile** to the Patent and Trademark Office.

Date: 8/4/2004   Signature: *Edward Mao*

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